

1123-20-349

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A bounded flow function is a discrete dynamical system on a finitely presented group, mapping the set of paths in the Cayley graph into itself, such that path lengths increase in a bounded way and iteration eventually maps every path into a fixed maximal tree. If the flow function can be computed by a finite state automaton (FSA), the group is called autostackable and the FSA can be used to solve the word problem for the group. In this talk I will discuss relationships between geometry and dynamics that produce autostackable structures. In particular, I will discuss autostackability for closed 3-manifold groups. This is joint work with Mark Brittenham and Tim Susse. (Received August 29, 2016)